MESSAGE FROM THE PRESIDENT

WHERE ARE WE NOW?

The American Association for Hand Surgery remains a vibrant organization reflecting the interests and energies of its many volunteer members and leadership. The membership reflects a variety of individuals—all with a common purpose in providing outstanding care to patients with problems involving the upper limb. The membership continues to grow with 89% physicians almost equally divided between plastic surgery and orthopaedic surgery training, as well as 11% health care providers involved in the evaluation and rehabilitation of the upper limb.

While the activities of the AAHS extend far beyond its annual meeting, I should start with an overview of what we might expect at our meeting in Naples, Florida in January 2013. The meeting will initiate a more structured combined AAHS/ASHT Specialty Day under the direction of Sharon Andruskiwe PT/CHT and David Ring, MD. The one day program entitled “Movement” will feature instructional courses; surgical and rehabilitation panels, and several workshops—all featuring both surgeon and therapist expert speakers. This full day program will run simultaneously with the first day of the AAHS meeting with both groups joining together for our guest lecturer Dr. Eduardo Zancolli Jr. of Buenos Aires, Argentina. He will be among a host of Argentine hand surgeons as our guest nation will be the Argentine Association of Hand Surgery.

Our academic program will continue to have instructional courses; MOC courses; podium panels; two minute presentations; and featured surgical videos. Our other guest lecturers will be Dr. James May Jr., former AAHS President; Dr. Diego Fernandez from Berne Switzerland; and our combined guest with the ASPN and ASRM will be Carl Hiaasen, a well known author of strange and funny stories.

We will have outstanding social events including a 5K race; volleyball on the beach; golf and tennis tournaments; and a tremendous banquet.

(continued on page 6)
**FROM THE EDITOR’S DESK**

As the summer draws to a close and my kids head back to school, the beginning of another “academic” season approaches. Just as they are preparing for a new set of teachers and subjects, the medical community also restarts their academic pursuits.

Our department’s Grand Rounds and regular conference schedule resumes after a break for the summer. Conferences calls and CME events begin in full force after what is typically a less hectic summer schedule.

While this is typical for most, it has not been true for Dave Ring, this year’s annual meeting program chair. Dave and his committee have reviewed hundreds of abstracts in preparation for what will prove to be an exciting and thought-provoking meeting next January in Naples, Florida. The venue is a wonderful resort on the gulf coast, where there is bound to be a tremendous exchange of ideas between faculty and participants; physicians and therapists. David, along with President Jesse Jupiter, have plans for an interesting collection of social events that will help to strengthen the ties that routinely form during this meeting each year. Therefore, I encourage every member to consider this year to be the year “not to miss” the annual meeting.

Finally, I would like to thank Dr. Danyo for his contribution for this edition of the Quarterly. Randy Bindra had the idea to try to gather some information on the early formation of the AAHS and Dr. Danyo agreed to provide it. It does help to describe the foundation for the inclusiveness inherent in this group’s membership. If any other members have interesting stories of the earlier years, I would welcome their inclusion in future editions of this publication.

Hope to see everyone in Florida.

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**AAHS Research Grants**

The American Association for Hand Surgery is Now Accepting Applications for its Annual AAHS Research Grant

The American Association for Hand Surgery awards Annual Research Grants to clinicians and therapists in private or academic practice for small clinical studies focused in hand care, or for pilot studies leading to a more major hand care study. Grant applications are judged not only on scientific merit, but also on whether the project can realistically be completed in 1 year and on the quality and practicality of the budget. All AAHS members and applicants for membership are eligible to apply. Non-member residents and fellows are also eligible with confirmation of appropriate AAHS member sponsorship. 1 award in the amount of $10,000 will be granted for a 1 year period. There may be up to 3 co-investigators; 1 of the investigators MUST be an Active or Affiliate AAHS member.

To view additional guidelines and to obtain an application, please visit [http://handsurgery.org/grants/research.cgi](http://handsurgery.org/grants/research.cgi). The deadline for all AAHS Research Grant applications is November 1, 2012. Only electronic submissions will be accepted.

**AAHS/PSF Combined Pilot Research Grant Opportunity:** The AAHS/Plastic Surgery Foundation (PSF) Combined Pilot Research Grant may be another funding opportunity of interest. All ASPS and AAHS members and applicants for membership (including orthopedic surgeons and therapists) are eligible to apply. The application deadline for the AAHS/PSF Combined Pilot Research Grant is December 3, 2012. To view instructions, visit [http://www.thepsf.org/research/grant-applications/combined-research-grant](http://www.thepsf.org/research/grant-applications/combined-research-grant).
Calendar of Events

2012

October 18-21, 2012
ASHT 35th Annual Meeting
San Diego, California

November 15-17, 2012
American Society for Reconstructive Transplantation
3rd Biennial Meeting
Chicago, Illinois

2013

January 9-12, 2013
AAHS 43rd Annual Meeting
Waldorf Astoria Naples
Grande Hotel
Naples, Florida

March 4-8, 2013
12th Triennial Congress of the IFSSH & and 9th Triennial Congress of the IFSHT
The Ashok Hotel
New Delhi, India

April 25-27, 2013
14th South American Hand Surgery Meeting in conjunction with the 33rd National Meeting of the Brazilian Hand Surgery Society
Rio de Janeiro, Brazil

May 30 - June 1, 2013
XVIII FESSH Congress
Antalya, Turkey

2014

January 8-11, 2014
AAHS 44th Annual Meeting
Grand Hyatt Kauai Resort & Spa
Kauai, Hawaii

May 18-21, 2014
XIX FESSH Congress
Paris, France

2015

January 21-24, 2015
AAHS 45th Annual Meeting
Atlantis Resort
Paradise Island, Bahamas

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LESSONS I LEARNED ON A MEDICAL MISSION TRIP TO GUATEMALA

Kris Valdes

1. You don’t need the latest and greatest device to get the job done: rocks can be used for traffic cones, palm fronds for brooms, and machetes for block cutting (I can split a block with 10 whacks!)

2. Simple life = happy life. The typical Mayan village family sleeps in 1 bed in a 1 room mud walled home. They are so happy and friendly. They would never pass you on the street and not say “Buenas tardes”.

3. A mission trip is like adult summer camp. Wonderful people volunteer for humanitarian trips, so you meet the nicest people. My very best friends are people that I met during the past 4 years of participation in the Guatemala Healing Hands medical mission.

4. I have seen more complicated cases in one week in Guatemala than I do in years in the states. It is a great learning experience to see a variety of complicated cases: i.e. gunshot wounds, stab wounds, severe electrical burns, nerve traumas, etc.

5. There are many different ways to accomplish the same purpose. Every time I visit Guatemala, I learn about a different type of splint or treatment technique from the other therapists on the mission. I was also astonished when I watched a young boy with CP stabilize himself in his chair with his arms and put on his socks independently using just his feet.

6. Guatemalans do not possess a sense of “entitlement.” They do not believe they should be given services, money, or goods. They are so grateful for anything that they receive. They wait patiently to be taken care of without questioning “how long will this take” or insisting that “they were next.”

7. Probably the greatest gift that we bring to Guatemala is HOPE. Parents want their children to have a better life than they had. A woman named “Suélema” sells fabric scarves and weavings to tourists. She told me that she didn’t have any education and has been selling goods on the street since she was 7 years old. She told me her daughter will graduate high school this year and attend the university next year. Parents of children with congenital hand deformities want reassurance that their child will be able to throw a ball or hold a cup.

8. There is never enough money to do all the things that you wish you could do to help those in need. Missions cost a lot of money and even though volunteers pay their own way to go, surgical suites must be rented, medications must be paid for, and supplies to build latrines and stoves are costly.

If you would like to volunteer to be part of a future mission or would like to contribute money that will be used to pay for a child’s surgery, please contact:

THE GUATEMALA HEALING HANDS FOUNDATION
290 6TH AVE
BROOKLYN, NY 11215
We are all aware that an E/M note—at its most basic level—incorporates three different sections. The first section is typically the History. For new patient notes, the History section should include a Chief Complaint, a History of Present Illness, a Review of Systems, and the Past Medical History. The Review of Systems is often neglected but must be included to bill for 99202/99242 or higher. Conspicuously missing as a requirement for the History is a section devoted to medications or allergies. These details are routinely included in my notes for patient care reasons. However, enumerating a patient’s multiple medications will not alter the E/M code.

The second section is typically the Physical Examination. Most hand surgeons will utilize the Musculoskeletal Single Specialty Examination, which includes a general evaluation and details regarding the neck, back, and extremities. Since most hand surgeons limit their practices to the upper extremities only, the Physical Examination will only describe range of motion, stability, and strength of the neck and both upper extremities. From an E/M standpoint, this makes it extremely difficult for a hand surgeon to code Medicare visits at a level higher than 99203.

Finally, the Decision Making section usually constitutes the third and final part of an E/M note. In this section, higher level codes can be achieved by increasing the number of diagnoses reported.

Consider listing the diagnosis for every affected digit and/or hand. For example, do not list multiple trigger fingers as a single diagnosis; consider listing each finger as a separate diagnosis. This practice is substantiated by proposed ICD-10 changes, which will require that we list a different code for each finger. As of now, right ring finger stenosing tenosynovitis will require a diagnosis code of M65.341, while the left middle finger will require M65.332. Interpretation of radiographs, electrodiagnostic study orders, and the utilization of other diagnostic tools can elevate the coding level substantially.

The E/M level for new and consult visits is defined by the lowest score of the three sections. However, the coding level for established visits is defined by the lower component of the top two sections.

Some final considerations to consider: For new unrelated problems that are treated within a surgical global period, add modifier -24 to bill for the visit. For corticosteroid injections that are unplanned, add modifier -25 so that the E/M visit is also reimbursed. This modifier applies for initial and follow-up evaluations. An E/M visit cannot be billed for planned injections.

References
From the President (continued from page 1)

The AAHS has been exceptionally active in extending its educational activities and enhancing our national exposure reflecting our emphasis on education. Don Lalonde, MD has been working in concert with the ASSH in developing Performance Improvement Modules and he will also be the initial AAHS Visiting Lecturer at the annual ASHT national convention in San Diego. We hope that this will continue on an annual basis.

The AAHS was featured by VuMedi for a webinar entitled “AAHS presents—the ulnar nerve” This turned out to be one of the most watched webinar with very positive ratings. We are planning a second VuMedi webinar entitled “Job certainty in an uncertain world.”

Our organization co-chairs the Hand Specialty Day at the AAOS and will continue to do so annually.

Lastly, our journal, HAND, has become a well respected peer review journal under the guidance of Michael Neumeister, MD and is seeing increasing submissions for publication.

On a different front, I am pleased to report that the AAHS financially performed well with net assets exceeding one million dollars. The Board is pleased with our financial management group especially during these volatile economic times.

Within the past year, the Association membership and Hand Surgery Endowment contributors were surveyed as part of an analysis of the HSE. Using this feedback and the vision of the AAHS and HSE leaderships, the Endowment will be working over the coming year to strengthen its primary focus and initiatives. More information on the Endowment’s work should be available in January 2013.

WHERE ARE WE GOING?

2013 will see any number of developments in our educational activities. Among these include an AAHS co-branded Instructional Course at the AAOS Annual Meeting entitled “Wide Awake Hand Surgery”.

2013 will see any number of developments in our educational activities. Among these include an AAHS co-branded Instructional Course at the AAOS Annual Meeting entitled “Wide Awake Hand Surgery”.

The AAHS will reciprocate with the Brazilian Hand Society to serve at its annual meeting in Rio de Janeiro. A pre-course has been developed by Dr. LaLonde as an instructional program directed towards surgeons working in underserved areas in Latin and South America. It is hoped that we will also work on similar programs coordinated with the IFSSH.

Dr. LaLonde is also negotiating to develop a reverse Fellowship in Africa supported by this organization.

The AAHS has been exceptionally well managed by PRRI, which has further enhanced our ability to expand our activities successfully.

The AAHS is an inclusive organization and we look forward to your participation in our many committees or educational programs in the future.

Members Only Website Access:

http://handsurgery.org/members/

AAHS Members have exclusive access to the Members Only area of the AAHS website. To access, simply log-in with your individual Username and Password. Contact the AAHS Administrative Office if you need your login information.

- Access HAND, the official Journal of the AAHS. This is the best way to gain full access.
- Go Green and receive electronic-only access to HAND.
- Search the AAHS Membership database by name, geographic area, or specialty to find your colleagues.
- Update and verify your Member Record for efficient and effective communication. Please be sure to note your specialty so your colleagues can find you!
What began as an alumni meeting turned into founding of the American Association for Hand Surgery. Forty surgeons had been trained in Hand surgery at the Posch, Larsen practice in Detroit by 1968. I finished a one-year fellowship there in 1967.

Dr. Kim Lie, a Staff Hand surgeon in that practice, phoned me in 1968 to discuss the possibility of an alumni reunion. He received an affirmative. We settled on a place/date for 1969. My task was to come up with details of a program and an agenda for the discussion that was to follow the presentations.

In further communication with Dr. Lie before the event, I indicated the belief that a national organization was needed. Three proposals would be listed: no further reunions; another reunion in a few years; form a national organization.

The meeting took place in Detroit in 1969. It was well attended. An open discussion period lasted a few hours and culminated with the vote supporting a national body. We stated: Most of our members practiced hand surgery on a partial basis. The Hand Society had a cap on membership-125. We had no cap. The Hand Society met just preceding the annual meeting of the Academy of Orthopedic Surgeons. Many of our members were plastic and general surgeons. A different venue was required, such as preceding the annual meeting of Plastic and Reconstructive Surgery.

A different model would be employed with less formality and interactivity with presenters and leaders. Membership would be less restrictive. Occupational therapists would soon be capable of membership. AAHS would not be a competitor.

In the meantime, work proceeded rapidly on the road to a national presence for AAHS. Bylaws, legal matters, planning for the 1970 meeting were consummated on time.

At the annual meeting drafts of documents were reviewed by the Select Committee. Amendments and deletions were made. The general membership meeting discussed the totality of the material. Here, too, amendments and deletions to the Bylaws took place. Various committees were formed. Election of officers and Board positions, naming Chairs of committees emanated. I was asked to continue as President until 1972.

Development of the organization proceeded. A semi annual meeting of the Board was initiated. AAHS was in the air.

**AAHS Mission Statement**

The mission of the American Association for Hand Surgery shall be to foster and promote the highest quality of hand care through the development and sponsorship of educational programs related to the hand and the upper extremity, through communications with health care professionals and the public, and through the endowment of research.
Having first presented the “relative motion” splinting concept some 30 years ago at the AAHS, I’ve been asked to address confusion regarding its name. As this concept grows, we propose some clarification.

When we first did cadaver experimentation in the 1970s, and Maureen Hardy and Sandy Robinson made the original aluminum clunker splints, we believed the “relative motion” designation would clarify how this permits active motion by relative less amplitude of motion and tension on tendons with a common muscle, such as the extensor communis, lumbricals or flexor profundis. As we encouraged full amplitude of interphalangeal flexion after long extensor repairs and sagittal band surgery our early publications named this the “relative motion splint.” However, it became apparent to us that many surgeons and therapists did not comprehend this splint provided active motion compared to the popular dynamic splints, which do not require active extensor gliding. Miguel Saldana, a pioneer in dynamic splinting, compared the two methods in his series presented to AAHS in 1997 and called it the “Merritt splint,” (the least insightful name of all) and he concluded it to be preferable because of lesser morbidity.

When Julianne Howell accumulated our results, which she published in 2005 she tried to solve this confusion by choosing the acronym “ICAM” to clarify that it provided “I – immediate, C – controlled, A – active and M – motion.” I personally detest acronyms (because I can never remember what the letters stand for) and “controlled” doesn’t shed light on the mechanism of how the splint works, but did emphasize “immediate” and “active” to distinguish this from dynamic splinting. Admittedly, “ah-cam” is easy for me to say! During the ten years of our study only use of this splint for repair of long extensor zone 4-7 lacerations was included in the published result.

Since that time, we’ve expanded the use of the relative motion concept to include acute and chronic boutonniere management, which at first we called “reverse relative motion” splinting (an even more confusing designation). Subsequently, combining Dr. Lalonde’s “wide awake” local anesthesia, epinephrine and no tourniquet with relative motion splinting has afforded opportunity to expand the concept, albeit unpublished, to include complex repair and acute and chronic boutonniere deformities, intrinsic tendon transfer to replace IP extension, long extensor transfer for rheumatoid ruptures in concert with synovectomies, joint replacement with tendon repair or grafting, protection when mobilizing flexor tendon repair, digital nerve repair with early motion, etc., because this provides an excellent opportunity to verify the success of the procedure and the protection afforded by the splint in the operating theatre. Any surgical or splint adjustments needed can be made at that time to ensure success.

In discussing this with Dr. Lalonde, we agree that the least confusion might result if we call these “relative motion extensor” or “relative motion flexor” splints, depending upon whether the protected digit (or digits) is splinted in flexion or extension compared to its neighboring tendons. For example, in an acute boutonniere repair (after verifying success under local anesthesia with epinephrine) the proximal phalanx of the injured digit is held at about 15 degrees greater flexion than its neighbors, with only digits splinted for six weeks, and otherwise full motion and use encouraged; whereas a repaired long extensor of the MP joint would be splinted in 15 degrees greater extension than its neighbors for six weeks, including a wrist component for the first 3-4 weeks to avoid passive tension on the repair with full wrist and finger flexion. As this concept becomes accepted, I believe the ICAM designation will be confusing unless we have an ICAEM and an ICAF, which I believe will be even more difficult for me to remember. I just pray we never confront “RMFS” and “RMES” acronyms!

I do believe that combining “wide awake” local anesthesia with epinephrine and immediate active “relative motion” splinting affords less morbidity and also provides continued new applications as this concept is recognized. It’s name needs to include the concept.

References

What’s in a Name? “ICAM” versus “Relative Motion” Splints: What Should We Call These Immediate Active Motion Splints?
Wyndell H. Merritt, MD, FACS, Richmond, Virginia
Panel Discussion: The State of Hand Transplantation

Alex: This is Alex Spiess, I’m from the University of Pittsburgh. We have an excellent panel gathered here today designed to provide our audience with an update on the state of hand transplantation in 2012. Joining me tonight for this interactive discussion is Benjamin Chang from the University of Pennsylvania, Simon Talbot from Brigham and Women’s Hospital, Gerald Brandacher from John’s Hopkins University, and Kimberly Maguire, occupational therapist from the University of Pittsburgh Medical Center. I just wanted to thank all of you for participating in this edition of Hand Surgery Roundtable, and with that, let’s get started.

Ben, can you briefly discuss the components that go into the creation of a viable and longstanding VCA Program?

Ben: Well I think there’s a lot of operational work that needs to take place. Number one is to enlist institutional support and funding. You also have to get all the team members in place. Active participation from the transplant service at your institution, the therapists, anesthesiology, pathology, psychology, social work, nursing, pharmacology, infectious disease, etc. is essential. There’s literally about a dozen different groups that you need to get on board before even starting a program. I think the daunting task is really trying to coordinate all of these different parts and identifying, what group is going to be doing what when. And then as you get closer to the clinical reality, you need to get the operating room staff and the nursing staff - who’s going to be actually taking care of this patient - on board as well. So it really is a monumental effort.

Alex: Gerald, what role do you feel that research has in this process? And do you feel that a program that’s offering VCA should have an associated research program?

Gerald: As with any novel and emerging field research is an integral component of VCA and I think as we’re about to begin to understand some of the unique immunological features of these particular types of transplants, that an active research program should be the scientific foundation of any clinical hand and face transplant program.

Alex: Ben, can you walk us through some of the anatomical and physiological considerations when you evaluate a potential hand transplant candidate?

Ben: Anatomically, the level of amputation has the greatest impact on your likely functional outcome, as well as designing the operation. The operations are quite different at the distal forearm level as compared to the proximal forearm or above elbow level. I think we need to think about how likely it is that patients will undergo the rehab program and the nerve regeneration required if you’re talking about a more proximal level amputation. In terms of the actual procedure, I think it's important to simulate that level transplantation as many times as you need to work out the actual procedure, although it's very

(continued on next page)
going through and a really good understanding of what they’ll be our patients have a really good specialists also to help us know that known and worked through. These make sure that all these issues are baseline evaluation and to really all our candidates meet with a arms, is very important. We have trauma from the incident that may illness, or underlying physiological abuse, underlying psychiatric ahead of time; things like substance problems that may become appar- Making sure that underlying involvement, is extremely important. Making sure that underlying problems that may become apparent after surgery are dealt with before time; things like substance abuse, underlying psychiatric illness, or underlying physiological trauma from the incident that may have caused them to lose their arms, is very important. We have all our candidates meet with a psychologist and psychiatrist for a baseline evaluation and to really make sure that all these issues are known and worked through. These specialists also to help us know that our patients have a really good understanding of what they’ll be going through and a really good appreciation of the involvement that they’re going to need to have through this whole process.

There are certainly some psychological and some psychiatric factors that may preclude a patient from transplantation. In the early days of this kind of work, the results of a number of different groups have shown that being very rigorous about this evaluation is a very important aspect because it certainly can turn an otherwise technically excellent result into a functionally very poor result. Making sure that patients who have serious underlying conditions are helped ahead of time or not offered transplantation is a very important thing.

**Ben:** May I just jump in and ask you, what are red flags for you? This is the most challenging part of picking a patient. What are the psychological aspects that you would say that this patient is not a candidate?

**Simon:** I think that’s a very difficult question because often it’s a very grey area. And as surgeons we’re much more comfortable dealing with level of amputation or cardiac disease, or something that we have concrete variables and measures for. Oftentimes the psychological evaluation is far less absolute. I think there are a few truly absolute psychiatric or psychological contraindications. Obviously a patient who cannot or who will not reliably participate in the decision-making or in the rehabilitation is a red flag. Any patients who have active substance abuse issues, or unresolved axis one psychiatric diagnoses, would certainly be absolute contraindications.

Many of the other things are a little bit greyer and a little bit harder to decipher. In the early days of evaluating a patient, part of our goal is to meet them multiple times so that we know that post-operatively, when we’re having to see them many times a day for many months into the future that they’re going to cope with all the kind of stresses and pressures that they’re under. Certainly getting a good idea of how a patient may deal with a very stressful situation is important.

**Kim:** I would have to agree with that. The patient comes in for a screening and is seen by multiple professionals. We must collaborate and use our critical reasoning and clinical judgment skills as little things will come out to each different person that they see. We need to address their family struggles and issues. If they have young children, how are they going to deal with their childcare? If they are responsible for elderly parents, how are they going to be able to suspend that responsibility while they go through the transplant process? There are additional stressors in their lives that we need to address as well as their medical issues, so when they go through this procedure, they can handle it in addition to everything else that is going on in their lives.

**Simon:** I think that’s an excellent point and that’s where the multi-

(continued on multi-
disciplinary aspect of it comes in. We’ve found that our occupational therapists are far more adept at identifying some of those additional stressors and some of those additional things that we’re not so familiar with. Our psychiatry team is outstanding at meeting with the entire family and coming back with an evaluation of some of the things to watch out for in the post-operative period. So these are people that are really specifically trained at dealing with these kinds of issues, and I think that’s the reason it’s very important to have them on the team.

**Alex:** I also think that PTSD is an under reported psychological issue that most of our amputees deal with. We have seen it in our own patients and we’re finding that it may play a significant role in a patient’s ability to make sound decisions with respect to medication and therapy adherence, potentially negatively impacting the overall long-term outcome of the transplant.

**Ben:** How much family support do you think is necessary? Would you do a transplant on a patient who has no family, but only a hired aid as the only help they have?

**Alex:** So that’s a great question, and I think the answer right now is no. I think that family support is a critical part of the puzzle. I think that with these patients, not only are they physically dependent on somebody in the post-transplant period, they need a stable social situation in order to assume the life of a transplant patient. Transplant patients assume numerous responsibilities such as taking care of the transplanted limb, medication adherence, and adherence to therapy regimen. The daily stressors of such responsibility require a stable support system to manage. The costs of non-adherence to the whole lifestyle can be catastrophic to the transplanted limb. Strong family support and a good social situation is another aspect of the whole transplant process that goes understated.

**Simon:** I think the other point to make here is that these patients are potentially very vulnerable, and having the support of a family who are part of the decision-making process and able to discuss and reiterate with the patient, is very important. A lot of people see receiving a hand transplant as the end to their problems, and I don’t think that’s an accurate assessment. Having a family who can perhaps more clearly hear the risks, benefits, and alternatives is very important.

**Gerald:** Along this line I think it is a critical component of the pre-op evaluation and psychological evaluation to ensure that both the patient, as well as the family, have realistic expectations of how a hand transplant is going to change their life and how it’s going to impact their overall well being.

**Alex:** That is a great point, Gerald. I think that in time as we get a larger cohort of transplanted patients and we really look back and study their outcomes and see who’s thrived in this setting and who’s failed, we’ll be able to develop more refined instruments that will help us better predict the patients that are more psychologically stable moving forward.

**Kim:** Another thing to remember when screening the patients is that they’re going to tell you whatever they think you want to hear so that you will recommend them for the transplant. I agree with what was said earlier, they think a hand is going to solve all of their problems. I think that’s one reason why it’s good to have the team talk to them in various settings, both with their family and without. That way you get the full picture of where they’re coming from.

**Alex:** Ben, at this time, are there indications for unilateral below elbow transplants? In other words, does the risk versus reward ratio lean in favor of being too risky at this point?

**Ben:** I think that that’s going to be a matter for debate. At Penn, our IRB actually only allows for bilaterals at this point. I think the trade off…if somebody has a normal functioning hand on one side, to have them undergo a transplant and then be committed to immunosuppression the rest of their lives, the trade off may still not be in the patients favor. But I think it’s definitely a matter of personal opinion, certainly many unilateral hand transplants have been done around the world and have been successful. So that’s another point that we’re going to need more data to look at outcomes to see how risky the operation is in the long run with chronic rejection and side effects of the immunosuppression to see if the tradeoff truly is worth it for a single limb. But whether you think it’s worth it or not, the patient’s assessment may be quite different. So I think it’s an issue that’s going to be debated for a long time.

**Alex:** Along those lines, Gerald, what are some of the more common side effects, or common risks associated with current immunomodulatory protocols, be it a triple or single agent therapy?

**Gerald:** Well in general the side effects of conventionally immunosuppressive agents are categorized in three major areas—infecious side effects (viral, bacterial or fungal), so called opportunistic infections, metabolic side effects and malignant complications.
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The mission of the Hand Surgery Endowment is to foster and promote the highest quality of hand care through development and sponsorship of educational programs related to the hand and the upper extremity, through communications with health care professionals and the public, and through the endowment of research.

The Hand Surgery Endowment depends greatly upon the generosity of AAHS members and affiliates for support. Contributions support current and future initiatives:

- Guatemala Healing Hands Foundation
- Health Volunteers Overseas Missions
- Partnerships with International Federation of Societies for Surgery of the Hand (IFSSH), Orthopaedic Research & Education Foundation (OREF), and many other organizations for international outreach and volunteer missions to improve global hand care
- Vargas International Hand Therapist Teaching Award*
- Research Grants, including the AAHS Annual Research Grant and the HSE/AAHS/PSF Combined Pilot Research Grant

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Aviva Wolff, OTR, CHT
Levent Yalcin, M.D.
Karen Zaderej
Richard J Zienowicz, M.D.
Probably one of the most common of those side effects related to a class of immunosuppressants referred to as calcineurin inhibitors or CNIs which currently represent the backbone of any protocol for hand or face transplantation is nephrotoxicity. This is important to keep in mind during screening and also follow up to have a very close eye on renal function in those patients.

Other rather frequent side effects of this type of agents include hypertension, diabetes, hypercholesterolemia and neurological side effects such as tremors and paresthesias. Steroids are another frequently used type of immunosuppressants for both maintenance as well as treatment of acute rejection episodes and have a variety of serious side effects including but not limited to hypertension, osteoporosis or osteonecrosis (observed in the very first US hand transplant recipient, acne, baldness, anxiety or depression and a slew of other metabolic problems.

Mycophenolate mofetil or MMF is associated with gastrointestinal side effects such as diarrhea, nausea, abdominal pain or weakness as well as leukopenia.

According to the International Registry for hand and face transplantation triple-drug regimens used in upper extremity transplantation have been predominantly associated with diabetes mellitus, nephrotoxicity, osteonecrosis, leukopenia, hypertension and hyperlipidemia.

A particularly serious side effect in VCA is CMV infection that can trigger rejection episodes that are challenging to treat/reverse. Therefore CMV matching between donor and recipient remains a very important issue in this field. What we have learned from more than a decade of experience with VCA both initially in Europe and now in the US is that probably whenever possible a risk combination of a CMV+ donor into a CMV- recipient should be avoided for these types of transplants.

Ultimately, prolonged suppression of the immune system impairs the ability of the body to prevent cell dedifferentiation and cancer development caused by carcinogens such as sunlight or oncogenic viruses. Hence, the overall risk for malignancies in transplanted patients is higher when compared to normal individuals. The risk of developing certain cancers such as skin cancer, post-transplant lymphoproliferative disorders (PTLD), or Kaposi’s sarcoma is increased by several-hundred-fold. The incidence of skin cancer within 5 years of transplantation in liver, kidney, and heart transplant recipients ranges for example from 1.5% to 34%.

Alex: Thank you, Gerald. I heard you mention conventional therapy. What is the future of immunomodulation in hand transplantation? Is it going to continue to be the ‘conventional triple’ therapy or are more programs going to move towards single agent therapies? Or are programs going to move in a completely different direction in the future?

Gerald: I believe that we will see a significant development and a lot of different therapeutic avenues pursued in these types of transplants in the future. Upper extremity transplantation offers particular advantages to implementing novel strategies to minimize immunosuppression therapy due to some unique immunological features:

A few of those unique aspects I think worth mentioning: 1) For the first time in the history of transplantation it is possible to continuously visually monitor the graft for early clinical signs of acute rejection by simply looking at the skin component which is the main target of rejection in these type of transplants. This allows us to timely intervene with immunosuppression and to precisely adjust immunosuppression, probably more so than in any other type of solid organ transplant. This makes strategies for tolerance induction as well as attempts to minimize immunosuppression particularly appealing. 2) With the skin as the main target of rejection, transdermal (topical) drug application is a viable alternative or adjunct to systemic immunosuppression with fewer side effects in case of skin rejection. 3) VCAs are furthermore the only type of grafts to include donor bone marrow and a vascularized bone marrow component as immunocompetent elements. This not only represents a constant source of donor antigen and donor-derived stem cells but also favors the ability for chimerism induction and maintenance. This has been shown in various experimental models, as well as in the clinical setting, to be a prerequisite to minimize or avoid immunosuppression long-term.

Currently there are several promising strategies to minimize or avoid immunosuppression and to induce immunological tolerance for transplantation on the horizon. The most encouraging results have been demonstrated for cell-based approaches for immune modulation including donor bone marrow, regulatory T cells, stems cells in particular mesenchymal stem cells and tolerogenic dendritic cells. These approaches have been shown to be successful in large animal studies for VCA and are also currently entering first clinical trials.
in both reconstructive and solid organ transplantation. Also the use of biologic agents such as monoclonal antibodies and costimulatory blocking agents that allow to very specifically and targeted interference with T cell activation during an alloimmune response seem to be very promising and will definitely be important in future protocols for upper extremity transplantation.

Other more conventional/traditional approaches to improve the current clinical treatment protocols for reconstructive transplantation include steroid minimization/avoidance and CNI sparing regimens, switch from CNI to mTOR inhibitors long-term, mTOR and MMF based maintenance protocols, as well as alemtuzumab and other non-myoblative induction regimens.

**Alex:** Kim, let me move the discussion in a little different direction. Can you take us through the first 12 months of the typical hand transplant patient from an occupational therapy standpoint?

**Kim:** First, we receive a phone call either from one of the surgeons or the hand transplant coordinator letting us know that the surgery has taken place. We immediately begin to rearrange our schedules so that we can have adequate coverage for our other patients while we get prepare for the hand transplant patient. The initial postoperative splint is fabricated at 2-14 days depending on the patient’s surgery and the surgeon’s preference. The splints vary depending upon the type of surgery that was done, the level of attachment, and special needs of the patient that brings concern to the surgeon. We begin soft tissue mobilization for edema. We try to control the edema early because, as we know, circulation is critical for healing. We also start passive range of motion, within a limited range, per the surgeon’s orders to limit the amount of scar adhesions. Additionally, active and active/assistive range of motion is performed to the non-effected joints of the extremity, for example the shoulder and elbow. This also assists with circulation and edema management. Cortical reintegration is started at 14-21 days so brain mapping can reestablish itself. It is essential to have the neurological connections in the brain begin to take over control of the hand. In some cases, it has been many years since the brain had a hand to control, and we need to get that engaged again. The theoretical basis of Occupational Therapy is to get people to do things that are very functional and meaningful to them. This is encouraging to the patient and increases their motivation. Therefore, they participate in the therapeutic activity longer and this leads to a quicker recovery. So, we get them to start self-feeding with the transplanted hand using a universal cuff, an adaptive piece of equipment, within 7-35 days. Again, this is all dependent upon the level of attachment of the extremity and the patient’s engagement, motivation, and medical status. We also had our patients beginning to write with adaptive equipment within the range of 7-49 days. Fine motor tasks began between 28-63 days. This includes small object manipulation, cutting with spring loaded scissors, using chopsticks, and fingernail painting with our female patients. This is extremely important so they get a sense of “owning” their hand early in the process. Most activities are begun with a splint or a piece of adaptive equipment. Then they are gradually weaned off until they are doing it independently with their new hand. As far as milestones they typically start to have pain, especially pain that requires some type of medication, between 14-105 days. There was a wide range between the group of patients we treated. Hot and cold sensation returned somewhere between 35-84 days, and we got a positive Tinels sign at the level of attachment between 28 and 35 days. Hypersensitivity began between 56 and 182 days. This actually impeded the therapeutic process and limited what we could do in therapy. We used desensitization techniques to help it to resolve. As far as lumbrical innervation, attachments at the wrist level showed signs of function between 77-98 days. Obviously a more proximal attachment would take longer. At the University of Pittsburgh Medical Center the patients attended Occupational Therapy 5 days a week, 6 hours a day, for the first six months. This is in addition to their medical tests, lab work, meetings with the psychologist, etc. So, it is very much like a full time job for them. That is why it is extremely important to pick the right candidate who can endure such a regimen. After 6 months, they get transferred to a local therapist who takes over their care. These therapists are in contact with us on an as needed basis. We (continued on next page)

**The theoretical basis of Occupational Therapy is to get people to do things that are very functional and meaningful to them. This is encouraging to the patient and increases their motivation.**

- Kimberly Maguire, MS
ask for monthly reports to record the patients’ progress and address any issues that might arise. The patients come back every 3 months so we can collect more data on them which include functioning levels, strength, range of motion, and continued sensory return.

**Alex:** Kim, at what point do you feel that the typical compliant patient should be able to “wean off” of the in-house occupational therapy and move into a home program?

**Kim:** Again, it would depend upon the level of attachment. Consideration must also be given to the amount of function they have and the compliance, engagement, and motivation exhibited. This will be different for every patient. Typically, it would be between 3-5 years, if they are doing very well. Follow up with the team once a year would be advised to determine if there are any issues or a decrease in the functioning of their extremities. They could always go back into outpatient Occupational Therapy for more intense therapy as needed.

**Alex:** In our experience, we have found that adherence to the prescribed therapy regimen is critical to acceptable outcomes. Equally as important is the patient’s engagement in therapy. Can you speak a little bit more to this?

**Kim:** Yes. We had patients who were compliant with their attendance. However, they would be very drowsy or sick from their medical issues and didn’t engage in therapy as much as we would have liked. They would take a lot of breaks. We had other patients were distracted by their family members, cell phones, texting, conversing with others in the clinic, etc. We have found that those who were not as engaged as the patient who was very focused, worked extremely hard, and limited the amount of interruptions in occupational therapy did not recover function as well. This was independent of whether they had a positive or negative attitude towards the experience as a whole. It basically comes down to their dedication to therapy. I believe Gerald could speak more about a bilateral patient in Austria who, even many years after formal therapy ended, continued his home exercise program daily as part of a physical fitness routine. He did extremely well!

**Alex:** Simon, with the competition for diminishing outside funding sources becoming stiffer, are individual hospital systems or insurance companies or both going to agree to absorb the cost of hand transplantation, assuming that down the line, there are going to be some reductions in the overall cost of the transplants as our techniques evolve.

**Simon:** I think that’s a very good question. Obviously, right now we are in that phase where transplantation is still being either self-funded by individual institutions or funded by grants, etc. I think that the future of VCA is going to have to depend on broadening the available funding sources and hopefully the inclusion of private payer insurance companies as a source of funding. Our experience is that the cost of transplantation is not as high as many people had originally thought. The immuno-suppression that we are using on many of these patients, provided that it doesn’t get too complicated, is obviously no more expensive than that which many kidney, heart, and lung transplant patients are already on. And the need for therapy is finite. So, I think the key for us moving forward is to show outcomes that are sufficient for private payers to agree to get involved with funding. I think that is one of the key challenges for those of us involved: to be able to measure our outcomes so that insurance companies can see what our outcomes are and can see the patients that are benefiting from this effort.

Certainly if you had a couple of national centers of excellence and had plenty of resources focused on those two or three areas, it would be an easier task to sustain.

- Benjamin Chang, MD

**Gerald:** Along those lines, if you don’t mind if I just jump in and ask Kim if they have tabulated the cost of therapy for each of these transplant patients? The program described is quite expensive and you know, I think the different between a hand transplant and other transplant patients is that this is going to go on for year and as you describe, it starts out into full time jobs. So, I would expect that the costs of the therapy portion would be much higher than say on a kidney transplant.

**Kim:** Yes, I would say so. I personally haven’t calculated the full cost of it. However, Louisville did do a presentation at the annual meeting of the American Society for Hand Therapists last year where they did a total cost breakdown. It becomes quite expensive. In addition to the therapists that you have to pay to work with these patients one-on-one, there is also the cost of the splints, the adaptive equipment, compression gloves, and a variety of other things that the patient may need per their own specific case. So, it does get to be very expensive.

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Hand Table
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Alex: Ben, if the insurance companies decide that hand transplantation is something they are not going to fund in the future, where does that leave us? Does it limit us to 1 or 2 national centers of excellence or is this something that is sustainable within each individual transplant institution?

Ben: I think it would severely limit how many centers could afford to do transplantation, and I think the only other alternative is to get the funding from the military. I just can’t see, without eventually having support from insurance companies how this could be a self sustaining model for institutions to try to come up with other sources of funding aside from insurance and government. Certainly if you had a couple of national centers of excellence and had plenty of resources focused on those two or three areas, it would be an easier task to sustain. To have a dozen different centers around the country all trying to get funding to do one or two transplants a year I don’t think is a workable model.

Alex: Simon or Gerald? What are your thoughts on this?

Simon: I very much agree that insurance companies are an essential part in the long-term management of this kind of funding. I think even the Department of Defense has an exhaustible supply of funding for this kind of thing. Ultimately we need to have enough patients and data to show the realistic results and the determinants of these results to determine that it is worth funding.

We have to remember that there are some very expensive sides to patients who are using prostheses and using around-the-clock nurse aides and the like. This flipside for patients who do not receive hand transplantations and require high-cost ongoing care, is important to consider. I think that we often forget that when look at the cost of transplantation. You start to see just how expensive it can be to not have a transplant if the alternative is a functional transplantation.

Alex: So, it sounds like we need to have uniformly collected national outcome data to present to the insurance companies to really make a viable proposal as to why this is a justifiable cost for the insurance companies.

Ben: I think we are going to get there. As the number of centers increases, zones will overlap and I think just like the solid organ transplantation programs, you really need to have a coordinated program to identify donors and have a formal wait list and criteria so that it doesn’t become a free for all. Right now, with a very few centers doing it and doing it sporadically, I think it is the time to really think about setting something up like that before we get into a situation where many centers are doing it and then running into conflicts with each other.

Gerald: I would agree. I think with the increasing numbers of transplants that we are going to see over the next couple of years, it is critical that we really get some regulation and oversight. We also should think about how to best utilize the existing resources and systems that have been created very successfully for solid organ transplantation. Also as the numbers increase, there will be a need to be able to exchange a graft across the country. I think to have multiple centers work together, to have a shared and nationwide waitlist for all these types of transplants, to really increase the chances of finding a perfectly matching donor for every recipient will become increasingly important.

Alex: Simon, assuming the individual transplant centers personalize their immunomodulatory protocols, what aspects of transplantation do you think can be standardized?

Simon: So, I think it is very important that we don’t standardize all the protocols so much as to preclude further innovation. However, I think it is very important for all of the different centers to share their data on the techniques that they are using, the protocols that they are using, the therapy that is being performed on these patients, and obviously the outcomes. The last thing we would want to do is reinvent the wheel each time and we want to maximize any benefits that are coming from new advancements. So, to that end, I think it is very important that we all contribute data to the pools such as The International Registry on Hand and Composite Tissue Transplantation. Of course, there are certain things that I think are very important to standardize. I think it is important to standardize many of the instruments that we use for outcome measurements. We use many outcome measurements because we don’t really have an ideal one and we don’t necessarily know which is the most sensitive for the information we want. At Brigham and Women’s Hospital we use the SF-36, EQ5D, the DASH, and the Hand Transplant Score System, just to name a few. I think we need to develop more specific and validated measures and we need to develop measures that are more targeted towards hand transplantation and functional outcomes of hand transplantation. The goal of transplantation is to help patients...
become integrated again and who are satisfied with their outcomes, and our measures need to reflect this. Even if somebody has a great objective outcome, if they don’t have personal satisfaction with the surgery, we have seen the disastrous results that can come from that. So, to summarize, I think obviously we don’t want to standardize everything, but standardizing our outcome measures is very important.

Gerald: I think that is a great point and also ties into our prior discussion about funding. If we don’t have the data from standardized outcome measures available to justify to the government or the insurance companies that the benefits of the surgery from a patient’s perspective and from the healthcare dollars perspective justifies such an endeavor then we are in a very difficult position to argue for funding and coverage of the costs of this type of surgery.

Alex: Simon, when all of the data is reviewed and presented, are we going to find that hand transplants are functionally superior to prostheses in all clinical situations, or is there going to be a patient who just does better with a prosthesis?

Simon: I think there are always going to be patients who do better with one or the other option. This is always going to be very patient-specific. I think this is why we owe it to our patients to have a really good understanding of the options available. This doesn’t just mean having a good understanding of what outcomes we are seeing in our hand transplantations, but that also what prostheses are available out there and understanding what the advances are in the prosthetic world and what outcomes can be expected from prostheses. We owe it to those patients to be able to give them a full range of options in the same way as we do in other areas of surgery. So, do I think that one solution fits every patient? Absolutely not. I think there are certainly patients that are poor candidates for transplantation and therefore they fall by default into a prosthetic side of things. Similarly, there are patients who do very poorly with prostheses because of levels of amputation, etc, who certainly may do better with transplantation. And there is everyone in between these extremes. But, as physicians, really having a good understanding of all the options is the key to informed consent on this issue.

Alex: In 2012, do we have enough understanding of the outcomes of hand transplantation to give our patients adequate information to make an informed decision regarding whether a transplant would really enhance their lives?

Gerald: Well, I think that if we look at the world experience and all the outcome data available so far that the answer is going to be clearly a “yes”. I think the immunological as well as the functional outcomes that we have seen by far exceed probably all of our initial expectations that we had when we em-barked on those procedures in the late 90s. Also, patient and graft survival rates are the highest of any type of transplant ever performed and in compliant patients are close to 100%. So, I think we were able to achieve a favorable risk-benefit balance for this life changing procedures to those patients with amputations and devastating tissue defects. In addition, when we look at the international registry data regarding patient satisfaction, more than 80% of all the transplant recipients state that the transplant resulted in a great improvement and excellent quality of life.

Kim: I agree with Gerald with regards to the subjective reports from the patients. Things we take for granted, but they are now able to do, thrills them. A young mother stated early in her Occupational Therapy that one of the things she valued was to be able to have her hand to shake the formula in her baby’s bottle without needing someone else to do it for her. Another patient was very happy that he was able to hold and feel his girlfriend’s hand. A bilateral recipient wanted to be able to simply brush his teeth and perform toileting care without assistance. It is the simple humane things that we take for granted that they miss so much. It means a lot to them. They get these hand transplants, and they get sensory return, and are using their hands functionally every day. It’s not just the objective data that we can use, but the self reports from previous patients. They can talk to potential recipients to educate and advise them as well.

Simon: Kim, I totally agree with you. There are so many of these things that are very hard to measure. I had a patient the other day who said he finds it so much easier when we goes to bed because he can pull the covers up over his neck and he doesn’t have to have someone put the covers to

These are things that are very hard for us to measure, but functionally and in terms of quality of life and patient satisfaction, these are absolutely critical.

- Simon Talbot, MD

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where he wants them. He can swim again and do things that he couldn’t easily do before. These are things that are very hard for us to measure, but functionally and in terms of quality of life and patient satisfaction, these are absolutely critical. They are hard to measure, but they are very important.

**Ben:** I agree with the point. I am looking at the other slide where we talked about informed consent. I think as with any complex operation, it is very hard to communicate enough information to truly get informed consent. I think once we have a population of patients who have gone through this and are willing to speak to the prospective patients about the entire experience, we would be farther along the road to be able to get truly informed consent. My impression is that many of the patients think that they are going to get the hand transplant and everything is going to be back to normal, except they have to take a few pills a day. That is basically the bottom line for many of these patients. The other stuff that you tell them about the extent of the therapy and the complications and the risks and all that stuff may just go in one ear and out the other. This is true for many of the other operations that we do like breast reconstruction for example. I think even more so in hand transplantation, there is an impression on the part of the patient that once this is over, I am going to be back to normal. As we know, it is not entirely the case.

**Alex:** Those are all excellent points. Gerald, I am going to ask you a difficult question, and that is on the topic of chronic rejection. Do you feel that chronic rejection exists in VCA as we seen in solid organ transplantation? If so, are hand transplants only temporary?

**Gerald:** I agree that this is a difficult question, but I think that this is also probably one of the most important questions that we have to ask. What we have learned in clinical organ transplantation is that chronic rejection remains the main reason for long-term graft loss. However, if similar concerns are warranted for hand transplantation still needs to be determined. Thus far only a few patients have a follow up beyond the 10-year mark and the incidence of chronic rejection in hand transplantation as compared to solid organ transplantation seems to be exceedingly low. There is only one report in the world series of upper extremity transplantation of graft loss in a patient compliant with immunosuppression that showed vascular lesions such as intima hyperplasia and luminal occlusion that are reminiscent of chronic rejection in solid organ transplantation. However, in experimental rat hind limb transplantation models changes such as intimal hyperplasia and luminal narrowing/occlusion consistent with chronic rejection or allograft vasculopathy have been shown after repeated episodes of acute skin rejection and frequent lapses in maintenance immunosuppression. So, I think it would be naive to believe that there is no such thing as chronic rejection in VCA, but I think from what we have seen, it might be that the incidents is significantly lower as in solid organ transplants at this point, and it might be that we have to simply also learn that the manifestations might be very different as what we have seen in solid organ transplantation.

Most recently Christina Kaufman from the University of Louisville reported some level of vasculopathy in all six of their hand transplant recipients with aggressive and severe intimal hyperplasia observed early post-transplant in two patients. Of concern, in four of their patients standard techniques used for surveillance of rejection (protocol skin biopsies, DSA and conventional vascular imaging modalities) were obviously inadequate for detecting early potentially reversible stages of allograft vasculopathy.

This underscores the importance of close long-term surveillance and standardized follow-up protocols in hand transplantation in particular with more and more emerging experimental immunosuppression minimization and tolerance inducing protocols.

**Alex:** Thank you all very much. On behalf of the AAHS, I just want to thank all of you for participating in the call tonight. Hopefully we were able to better educate our readers on the current state of this exciting field. I know I definitely enjoyed this conversation. Again, thank you all for taking some time out tonight to help to educate the readers of the Hand Surgery Quarterly on State of Hand Transplantation in 2012.

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**Hand Table (continued from previous page)**

- Gerald Brandacher, MD

This underscores the importance of close long-term surveillance and standardized follow-up protocols in hand transplantation...
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Dr. David Ring is the Program Chair for the AASH Annual Meeting in Naples, Florida. His mentor and colleague, Dr. Jesse B. Jupiter, is the current President of the AASH. David has been a member of the AAHS since 2010.

David was born, raised, and schooled in San Diego, California. He graduated from public high school in University City. He started playing drums in ninth grade, but his neighbors told him to cut it out. He sulked for a few months and feared the guitar (only for gods like Eddie Van Halen) and then took up the bass guitar. After buying the neighbor’s daughter’s unused guitar, starting to play in a protest punk band in high school, and buying a set of drums when the band needed a drummer, he could fit in wherever needed—at least for the simple stuff. The closest he got to stardom was drumming for a band named “All of Us” which got radio time in San Diego.

He couldn’t decide what not to study at the University of California at San Diego so he switched from a Physics/Math—Computer Science double major to Physics and Biochemistry and Cell Biology for double the B.S. He minored in Philosophy (which explains a lot).

His wife, Cinta Burgos, was the only woman in his freshman honors physics class. David was the only one that didn’t hit on her, but it worked out in the end. Cinta ended up in biotech consulting.

David had no idea that school was preparation for employment. Late to prepare for application to graduate school and medical school, he only had offers from a few places there was no way he could afford. While preparing for a year of lab work and a better application to medical school the following year, a meeting with his college Provost (Tom Bond I’m forever in your debt) resulted in a phone call, an interview, and acceptance at U.C.S.D. Medical School.

When David arrived at medical school, he figured he was the dumbest of the bunch, and he was probably right. But he loved the healing arts and his enthusiasm led to hard work and achievement. In the early days the idea was to learn about infectious diseases and try to have an impact in the underdeveloped countries that he and Cinta were visiting on their school breaks. David’s first clinical rotation in medical school was neurosurgery. He was the only one on the service that could take every other night call and round every day starting at 4:30am and not drink coffee. He was heavily recruited to neurosurgery. But the orthopaedic surgeons were having a lot more fun. And a lot more impact. An open tibia fracture was once a death sentence. Now patients get to complain about their knee pain after nailing.

David’s love of research started late in his third year when he started a project on pediatric discitis with Dr. Dennis Wenger, and learned to juggle multiple projects with Dr. Alex Vacarro (Dr. Steve Garfin’s fellow at the time and now a Spine superstar at Jefferson). One of the deans in David’s medical school said, “You have to write a book to get into Harvard”. So he did. Well a book chapter. And a few papers. When he arrived at the Massachusetts General Hospital as an intern in 1993 hungry to do more research, the only attending he ever saw on the ward early in the morning was Jesse Jupiter. After mustering up the courage to ask if he could do some hand research, Dr. Jupiter assigned him a small case series of osteogenesis imperfect patients having Ilizarov tibial deformity correction. The paper got into JBJS-A and Dr. Jupiter has been fueling David ever since.

Cinta and David planned to have a child during the transition from San Diego to Boston and surprisingly the plan worked. Their son Clinton, 18, was born during David’s intern year, made it through Boston Latin High School and is headed to UT Austin.

Having travelled the world and inherited David’s love of music, he’s ready to spread his wings. David’s Daughter, Laila, 13, also examed into Boston Latin High School and is just beginning to discover her interests, but is a natural talent on piano and guitar.

David completed Dr. Jupiter’s fellowship and stayed on staff at MGH; met a psychologist-researcher in 2000 and finally began to understand the human illness experience; and started the Dutch fueled science factory in 2003.

Since the U.S. doesn’t have higher degrees for clinical research he defended a PhD in Amsterdam the same day his first Dutch PhD student graduated, becoming the first person to be awarded and then sponsor a PhD on the same day in Amsterdam. Since then it’s been lots of research, writing, and editing, in addition to a busy and rewarding clinical practice.

The music stopped in the third year of medical school when life became too busy to make gigs. It restarted again in 2001 when the Harvard Orthopaedic Residency

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Leadership Profile: Ring

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had a drummer, guitarist, and keyboard/vocalist all in one resident year and the band Rod the Long Bone was formed. A second generation of residents, most of who ended up in the Boston area keeps Rod alive to this day. David’s son, Clint, filled in on bass this year, the first time they’ve played together in a band—and hopefully not the last.

Mark Baratz recruited Dr. Ring to help with the opening ceremonies at the ASSH meeting in San Antonio in 2007 and The Sagittal Band was born. This led to benefit gigs that are as close to being a rock star as David will ever be: Hard Rock Chicago with a catered dinner and a fridge full of beer in the dressing room.

Having presented at several AAHS meetings in the early 2000’s, David’s friend Dr. Kevin Chung drew him back into the Association for the 2010 meeting. In addition to being this year’s program chair, David is the AAHS representative to the Board of Specialty Societies Research Committee and was recently elected Vice Chair of that committee. David loves the discussion and camaraderie that characterize the AAHS meetings and trying to build and inclusive and interactive meeting for Naples. Hope to see you there!

Attention:
Budding Dupuytren Researchers

The Dupuytren Foundation (nonprofit, no commercial ties) will award two $10,000 research grants this year for work designed to advance understanding and/or treatment of Dupuytren’s Disease. One grant will be awarded for basic science research and one grant for clinical research. Guidelines and application information are available at http://Dupuytrens.org/dfgrants.htm Applications must be submitted via email prior to 12/12/2012 for consideration.
Lifelong learning... from residency to retirement

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PSENETWORK.ORG
To: Members of
The American Association of Hand Surgery

Dear Colleague,

We are happy to inform you that India will be hosting the 12th Triennial Congress of the International Federation of Societies for Surgery of Hand (IFSSH) and 9th Triennial Congress of the International Federation of Societies for Hand Therapists (IFSHT) in New Delhi from 4th to 8th March 2013. It will be our pleasure to welcome all of you to India. Please visit the website www.ifssh-ifsh2013.com for registration and abstract submission.

Important Dates

Last date for abstract submission - 20th September 2012.
Early Bird Registration Closes - 31st October, 2012

The Organising Committee is taking every step to make this visit to India a memorable one.

Welcome to Incredible India!

Dr. S Raja Sabapathy
Organising Chairman, IFSSH&IFSHT 2013
2013
AAHS
ANNUAL MEETING
Waldorf Astoria Naples
Naples, Florida

January 9-12, 2013
AMERICAN ASSOCIATION for HAND SURGERY

in collaboration with

The Argentine Association of Hand Surgery
(Asociación Argentina de Cirugía de la Mano y Reconstrutiva del Miembro Superior)

- Register Online.
- Reserve your hotel room online now.
- Complete program and meeting details can be found on the AAHS website.

www.handsurgery.org